AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An electronic brake control system for a vehicle having front wheels and rear wheels mounted upon a rear axle, the brake control system comprising:

a master brake cylinder;

a hydraulic control valve connected to said master brake cylinder, said control valve including a plurality of solenoid valves;

a plurality of front and rear wheel brakes connected to said hydraulic control valve, ~~each of said wheel brakes associated with one of the vehicle wheels~~ with [[a]] one of said front wheel ~~brake~~ brakes associated with each front wheel and [[a]] one of said rear wheel ~~brake~~ brakes associated with each rear wheel, said front and rear wheel brakes being responsive to operation of said solenoid valves in said hydraulic control valve to brake [[said]] the associated wheel;

a pair of front wheel speed sensors associated with the vehicle front wheels, each of said front wheel speed sensors operative to generate a speed signal that is representative of [[the]] a rotational speed of one of the front wheels;

a single rear wheel speed sensor associated with the vehicle rear wheels, said rear wheel speed sensor operative to generate a speed signal that is representative of [[the]] a rear axle speed; and

an electronic control unit electrically connected to said control valve and said wheel speed sensors, said electronic control unit operative to monitor said front wheel speed signals and said rear axle speed signal, said electronic control unit being further operative, upon detecting excessive slippage of one of the vehicle front wheels and the rear axle while the vehicle is launching, to cause said control valve to apply the front and rear wheel brakes on ~~the same~~ a first side of the vehicle [[as]] corresponding to the slipping front wheel, whereby engine torque is transferred to the [[other]] rear wheel on a second side of the vehicle that is opposite from said first side.

2. (Currently Amended) The brake control system according to claim 1 wherein said electronic control unit is further operable to calculate a vehicle speed and

then to compare said vehicle speed to said front wheel speeds and said rear axle speed to determine whether [[said]] the front wheels and rear axle are encountering excessive slip.

3. (Currently Amended) The brake control system according to claim 2 wherein said electronic control unit is operable to compare the difference between each front wheel speed and said vehicle speed to a predetermined slip threshold to determine whether either of [[said]] the front wheels is slipping excessively.

4. (Currently Amended) The brake control system according to claim 2 wherein said electronic control unit is operable to compare the difference between said rear axle speed and said vehicle speed to a predetermined slip threshold to determine whether either of [[said]] the rear wheels is slipping excessively.

5. (Currently Amended) The brake control system according to claim 2 wherein said electronic control unit is operable to compare said front wheel speeds and further wherein said electronic control unit is operable in response to detection of excessive slippage to apply [[the]] said front and rear wheel brakes on [[the]] a side of the vehicle corresponding to higher front wheel speed.

6. (Currently Amended) The brake control system according to claim 2 wherein the system is included in a ~~Traction Control~~ traction control system.

7. (Currently Amended) The brake control system according to claim 2 wherein said electronic control unit is operable, upon detecting excessive slippage of both of the front vehicle wheels, to apply all of [[the]] said vehicle wheel brakes.

8. (Currently Amended) A method for controlling an electronic brake control system for a vehicle having a pair of front wheels and a pair of rear wheels mounted upon a rear axle, the vehicle also having a pair of front wheel brakes, with

each front wheel brake associated with one of the front wheels, and a pair of rear wheel brakes, with each rear wheel brake associated with one of the rear wheels, the method comprising the steps of:

(a) providing a four channel anti-lock brake system that includes a pair of front wheel speed sensors, with each wheel speed sensor associated with one of the front wheels, and a single rear wheel speed sensor associated with both rear wheels and operative to measure [[the]] an average speed of the rear axle;

(b) monitoring the front wheel speeds and the rear axle speed during a vehicle launch for excessive wheel slip; and

(c) upon detecting excessive slippage of one of the front vehicle wheels and the rear axle, applying the front and rear wheel brakes on the same side of the vehicle as the slipping front wheel, whereby engine torque is transferred to the other rear wheel.

9. (Currently Amended) A method for controlling an electronic traction control system for a vehicle during launch of the vehicle, the vehicle having right and left front wheels and right and left rear wheels, the vehicle also having a pair of front wheel brakes, with each front wheel brake associated with one of the front wheels, and a pair of rear wheel brakes, with each rear wheel brake associated with one of the rear wheels, the method comprising the steps of:

(a) providing a four channel anti-lock brake system that includes a pair of front wheel speed sensors, with each wheel speed sensor associated with one of the front wheels, and a single rear wheel speed sensor associated with both rear wheels and operative to measure [[the]] an average speed of the rear wheels;

(b) measuring the rear wheel speed during a vehicle launch;

(c) applying the left rear wheel brake;

(d) measuring the rear wheel speed again;

(e) comparing the rear wheel speeds measured in steps (b) and (d);

(f) releasing the left rear wheel brake upon determining that the rear wheel speed measured in step (d) is greater that the rear wheel speed measured in step (b);

and

(g) applying the right rear and right front wheel brakes.

10. (Original) The method according to claim 9 wherein the traction control system is included in a four wheel drive vehicle.

11. (Currently Amended) An electronic brake control system for a vehicle having front wheels and rear wheels, the brake control system comprising:

a master brake cylinder;

a hydraulic control valve connected to said master brake cylinder, said control valve including a plurality of solenoid valves;

a plurality of front and rear wheel brakes connected to said hydraulic control valve, ~~each of said wheel brakes associated with one of the vehicle wheels~~ with [[a]] one of said front wheel ~~brake~~ brakes associated with each front wheel and [[a]] one of said rear wheel ~~brake~~ brakes associated with each rear wheel, said front and rear wheel brakes being responsive to operation of said solenoid valves in said hydraulic control valve to brake [[said]] the associated wheel;

a pair of front wheel speed sensors associated with the vehicle front vehicle wheels, each of said front wheel speed sensors operative to generate a wheel speed signal that is representative of [[the]] a rotational speed of one of the front wheels;

a single rear wheel speed sensor associated with the vehicle rear wheels, said rear wheel speed sensor operative to generate a wheel speed signal that is representative of [[the]] an average rotational speed of the rear wheels;

a device for detecting [[the]] a desired turning direction of the vehicle, said turning direction having an inside and an outside;

a device for detecting [[the]] an actual turning direction of the vehicle; and

an electronic control unit electrically connected to said control valve, said wheel speed sensors and said turning direction devices, said electronic control unit operative to monitor said turning direction devices and, upon detecting an excessive difference between said desired and actual turning directions during a vehicle turning

maneuver, causing said control valve to selectively apply the rear wheel brake that is on [[the]] said inside of ~~the turn~~ said turning direction to reduce the difference between said desired and actual turning directions, whereby vehicle understeer is corrected.

12. (Currently Amended) The brake system according to claim 11 wherein said electronic control unit is electrically connected to an accelerometer having an output, and further wherein said electronic control unit is operable to use [[the]] said output of said accelerometer to determine a normal rear wheel braking load and further wherein said electronic control unit is operable to limit rear wheel brake application to said normal rear wheel braking load.

13. (Currently Amended) A method for correcting understeer of a vehicle having a pair of front wheels and a pair of rear wheels, the vehicle also having a pair of front wheel brakes and a pair of rear wheel brakes with each front wheel brake associated with one of the front wheels and each rear wheel brake associated with one of the rear wheels, the method comprising the steps of:

(a) providing a four channel anti-lock brake system for selectively controlling the operation of the front and rear wheel brakes and that includes devices for detecting desired and actual turning directions of the vehicle;

(b) measuring [[the]] a desired turning direction of the vehicle during a vehicle turning maneuver, said turning maneuver having an inside and an outside;

(c) measuring [[the]] an actual turning direction of the vehicle;

(d) comparing [[the]] said actual turning direction of the vehicle to [[the]] said desired turning direction of the vehicle;

(e) upon the difference between the actual turning direction of the vehicle and the desired turning direction of the vehicle exceeding a predetermined threshold, applying the vehicle rear wheel brake that is on [[the]] said inside of ~~the turn~~ said turning maneuver to reduce the difference between [[the]] said actual turning direction of the vehicle and [[the]] said desired turning direction of the vehicle whereby vehicle

understeer is also reduced.

14. (Currently Amended) An electronic brake control system for a vehicle having a pair of front wheels and a pair of rear wheels, the control system comprising:

a master brake cylinder;

a hydraulic control valve connected to said master brake cylinder, said control valve including a plurality of solenoid valves;

a plurality of front and rear wheel brakes connected to said hydraulic control valve, ~~each of said wheel brakes associated with one of the vehicle wheels~~ with [[a]] one of said front wheel ~~brake~~ brakes associated with each front wheel and [[a]] one of said rear wheel ~~brake~~ brakes associated with each rear wheel, said front and rear wheel brakes being responsive to operation of said solenoid valves in said hydraulic control valve to brake [[said]] the associated wheel;

a pair of front wheel speed sensors associated with the vehicle front vehicle wheels, each of said front wheel speed sensors operative to generate a wheel speed signal that is representative of [[the]] a rotational speed of one of the front wheels;

a single rear wheel speed sensor associated with the vehicle rear wheels, said rear wheel speed sensor operative to generate a wheel speed signal that is representative of [[the]] an average rotational speed of the rear wheels;

a device for detecting a desired turning direction of the vehicle, said turning direction having an inside and an outside; and

an electronic control unit electrically connected to said control valve, said wheel speed sensors and said turning direction detection device, said electronic control unit operative to monitor said turning direction device and said average rear wheel speed and, upon detecting an excessive slippage of [[said]] the rear wheels during a turning maneuver, causing said control valve to selectively apply [[the]] said rear wheel brake that is on [[the]] a first side of the vehicle that corresponds to said inside of ~~the turn~~ said turning direction, whereby torque is transferred to ~~the opposite~~ a second side of the vehicle that is opposite from said first side.

15. (Currently Amended) A method for controlling an electronic traction control system for a vehicle during launch of the vehicle, the vehicle having right and left front wheels and right and left rear wheels, the vehicle also having a pair of front wheel brakes, with each front wheel brake associated with one of the front wheels, and a pair of rear wheel brakes, with each rear wheel brake associated with one of the rear wheels, the method comprising the steps of:

(a) providing a four channel anti-lock brake system that includes a pair of front wheel speed sensors, with each wheel speed sensor associated with one of the front wheels, and a single rear wheel speed sensor associated with both rear wheels and operative to measure [[the]] an average speed of the rear wheels;

(b) measuring [[the]] a rear wheel speed during a vehicle launch;

(c) applying the left rear wheel brake;

(d) measuring [[the]] said rear wheel speed again;

(e) comparing [[the]] said rear wheel speeds measured in steps (b) and (d); and

(f) applying the left front wheel brake upon determining that [[the]] said rear wheel speed measured in step (d) is less that [[the]] said rear wheel speed measured in step (b).

16. (Previously Presented) The method according to claim 15 wherein the traction control system is included in a four wheel drive vehicle.